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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,065	11/25/2003	Cheng-Tzu Kuo	BHT-3230-75	4206

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EXAMINER

OLSEN, ALLAN W

ART UNIT PAPER NUMBER

1763

DATE MAILED: 12/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/720,065

Applicant(s)

KUO ET AL.

Examiner

Allan Olsen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 23-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 23-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 2, 2006 has been entered.

Drawings

Figure 4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

A substitute specification was filed to correct grammatical and idiomatic errors. While some changes were made, many of the most egregious errors remain, some of

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which persist in the claims as well. For example, claims 33 and 36 each recite: "plasma pretreating further comprises physical vapor depositing, chemical vapor depositing, electrochemically plating, coating, or transfer printing". This claim language prompted a 112 rejection in the Office action of March 31, 2006, wherein the examiner stated, "[i]t is not clear how the disclosed transfer printing (stamping) can be considered to be part of a plasma step." Applicant's traversal states: "[w]ith respect to the term "transfer printing", claim 33 is consistent with the specification at page 7." The examiner agrees that this claim language is consistent with the specification, however, the examiner also believes the specification is seriously flawed, particularly with respect to syntax, presumably, resulting from the translation of the foreign priority document into English.

The examiner believes that a personal interview may prove useful to address the issues regarding the specification.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 23-45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process*

Control Corp. v. HydReclaim Corp., 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999). The term “encapsulated” in claim 23 is used by the claim to mean “capped”, while the accepted meaning is “fully enclosed.” The term is indefinite because the specification does not clearly redefine the term.

Claims 33 and 36 includes “transfer printing” as a possible component of the plasma pre-treating step. It is not clear how the disclosed transfer printing (stamping) can be considered part of a plasma step.

Claim 37 recites the limitation “wherein said coating said substrate with a metal salt or an alloy thereof comprises...”. There is insufficient antecedent basis for this limitation in the claim. While there is basis for “said substrate” the previously recites substrate was not a “substrate with a metal salt or an alloy thereof”. The claim should positively recite the provision of a metal salt, or alloy thereof, to the substrate.

Claim 44 recites members of a Markush group of “nitrogen-containing gas”. However, the last four recited members do not contain nitrogen.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 23-45 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to

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which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 23-45 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

Claim 23 recites, "microwave plasma electron cyclotron resonance chemical vapor depositing an additive and a catalyst on a substrate...".

The examiner finds no basis for this limitation in the application as originally filed. To the examiner's understanding, the application describes a process comprising the following sequential steps:

- 1) deposition of a catalyst and an additive on a substrate
- 2) pretreatment of the catalyst coated substrate by heat and "etching"
- 3) microwave plasma ecr-cvd of carbon based nanostructures by reacting with substrate with a carbon containing gas.

As the examiner understands the disclosed process, the only deposition step that uses ecr-cvd is the step of growing the carbon-based nanostructures by providing a carbon containing gas. This occurs after the catalyst has been deposited on the substrate. With respect to the deposition of the catalyst, the specification discloses: "[t]he metal or nonmetal formed on the substrate using the catalyst by being selected from the group consisting of physical vapor deposition, chemical vapor deposition, electrochemistry, coating, and transfer printing." The specification does disclose the

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pretreatment step wherein before the provision of a carbon containing gas, the catalyst-coated substrate is, placed in an ecr-cvd and under a magnetic field, the substrate is heated and treated with hydrogen.

Claim 44 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Claim 44 recites, "...an amine of methane...". In their response to the last Office action, applicants explained that "an amine of methane includes mono-, di- and trimethylamines". While this provides the clarity that the examiner sought, it is again noted that original discloser provides no support for this claim language. Applicant states that support for this can be found on page 8. The cited passage reads:

The carbon-containing gas is selected from the group consisting of methane, ethane, propane, acetylene, benzene and mixture thereof. The nitrogen-containing gas is selected from the group consisting of ammonia, nitrogen and mixed gas of chemical ammonia- base compound mixture of methane, ethane, propane, acetylene, benzene and mixture thereof.

The examiner fails to see how this passage provides support for "an amine of methane".

Claims 24-29 and 32-45 use open claim language by reciting "...comprising..." or "comprises", for example, claims 28 and 29 each recite, "said additive comprises...".

The examiner finds no support for the open claim language recited in these claims.

Applicant indicates that the originally filed claims provide the requisite support, however, those claims use closed language by reciting, "...consisting of..."

Claim Rejections - 35 USC § 102

The following is a quotation of 35 U.S.C. 102 (a), which forms the basis for the following rejection:

A person shall be entitled to a patent unless –(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 23-45 are rejected under 35 U.S.C. 102(a) as anticipated by Little's US Patent Application Publication 2002/0192141 (hereinafter, Little).

Little discloses depositing magnetic particles as catalyst for the CVD formation of carbon nanotubes. Little teaches an annealing step wherein a strong magnetic field is applied while heating the magnetic particles. Little teaches applying a strong magnetic field during the CVD formation of the nanotubes. See abstract, figure 18 and paragraphs [0047], [0057], [0059] and [0140], [0147].

Response to Arguments

Applicant's arguments with respect to Little have been fully considered and are persuasive. The 102 rejection over Little has been withdrawn. Applicant's arguments filed pertaining to the various 112 rejections have been fully considered but they are not persuasive. The above rejections addressed applicant's arguments.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allan Olsen whose telephone number is 571-272-1441. The examiner can normally be reached on M, W and F: 1-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Allan Olsen
Primary Examiner
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A handwritten signature in black ink, appearing to read "Allan Olsen", is located at the bottom of the page.